



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,055	07/30/2004	Takunori Taira	256740US2PCT	2509
22850 7590 01/08/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER NGUYEN, TUAN N	
			ART UNIT 2828	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/08/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/502,055

Applicant(s)

TAIRA ET AL.

Examiner

Tuan N. Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09/27/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 10-12 are rejected under 35 U.S.C 112, second paragraph, as being indefinite, vague, and confusing for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **for example**.

It is not clear whether “a (110)- cut rod is useda pump beam as a gain aperture ... a composite material doped YAG is surrounded by undoped YAG ...” are part of the same crystal or independent element working and affecting the crystal. There was no figure to show such structure and/or relationship. There is insufficient means plus function structural relationship between the elements, which render the claims vague and indefinite.

Claim Rejections - 35 USC § 102

3. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 4, 5, 7 are rejected under 35 U.S.C. 102(a) as being unpatentable Kimura et al. (US 5843227).

Art Unit: 2828

With respect to claim 4, Kimura et al. ' 227 shows and discloses an optical device (*ABSTRACT: GaN crystal superior in flatness crystalline*) wherein a direction of beam propagation is selected to be other than those of the (111)-axis direction of a crystal belonging to equi-axis crystal system to reduce birefringence effects based on photoelastic effects due to centrosymmetrically induced stress (*Fig 1: shows equi-axis crystal surface direction in direction $[1,0,0]$, $[0,0,1]$, $[0,1,0]$, $[0,-1,0]$, $[0,-1,1]$ other than (111) and no birefringence/ double refraction due to centrosymmetrically induced stress*).

With respect to claim 5 (Fig 1: $[1,0,0]$) shows wherein the direction of beam propagation is selected to (100)-direction of crystal.

With respect to claim 7, Kimura et al. ' 227 shows and discloses wherein the crystal in equi-axis crystal system is GaN, or GaAs (*ABSTRACT*).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 2828

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
6. Claims 6 are rejected under 35 U.S.C. 102(a) as being unpatentable Kimura et al. (US 5843227) in view of Sugawara et al. (JP 2001-235775).

With respect to claim 6, Kimura et al. '227 shows and discloses the above (*Fig 1: shows GaN crystal superior in flatness crystalline surface direction in direction ([1,0,0], [0,0,1],[0,1,0],[0,-1,0],[0,-1,1]) without discretely disclose propagation in the (110) direction.* It has been held where omission of an element/ function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In this case, the direction of beam propagation is selected to (110)-direction of crystal. Sugawara et al. '775 shows and disclose a crystal is prepared such that the propagation is in the (110) direction (*ABSTRACT*) (*Fig 1: 10, [110] direction*).

With respect to claims 8-12 the claims further require wherein a linearly polarized beam forming an angle of $45 \pm 5^\circ$ with respect to the crystal axis in a (100)-plane, a composite material in which doped YAG, and wherein a (110)-cut rod and a pump beam which plays a role as a gain aperture are used in a case of end pumping to reduce depolarization when $r_a = r_0/4$, in which r_a is a radius of a laser beam and r_0 is a rod radius. . Sugawara et al. '775 shows and disclose a crystal is prepared such that the propagation is in the (110) direction (*ABSTRACT*) (*Fig 1: 10, where crystal axis cut rod [110] direction, where it is a YAG laser [0002], where a pump beam with aperture used in end pumping*) (*Fig 3, 5: 16,19, 10 where laser beam having a radius and the*

Art Unit: 2828

rod another radius)(Fig 4). It has been held where general conditions of a claim are disclosed in the prior art, discovering the optimal ranges involves only routine skill in the art, in this case $r_a=r_0/4$.

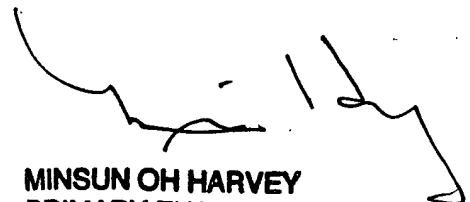
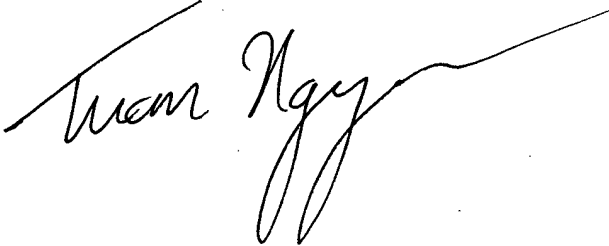
Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen



**MINSUN OH HARVEY
PRIMARY EXAMINER**